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## Occurrence of an Albino Garter Snake, *Thamnophis radix*, in Cook County, Illinois

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Although albino snakes of some species occur with moderate frequency, albinism in the plains garter snake, *Thamnophis radix radix* (Baird and Girard), is to my knowledge unrecorded. A newly-born albino of this species secured in September, 1950, is accordingly of special interest. The area of collection was a vacant lot within the city limits of Chicago's west side.

The specimen is not completely albinistic for, although it lacks all melanophores in the dermal layers, the yellow-reflecting guanophores are present in at least normal amounts. It is suggested that some areas not normally having these guanophores do have them in the amelanistic specimen, although it is true that in normal snakes this "extra" yellow may be masked by the melanophores which occur in the outer dermal layers. The lateral yellow stripes are more brilliant than is usual; furthermore, pale yellow outlines a diamond pattern between these stripes. The diamonds themselves are of a pinkish hue due to the dermal capillaries, and correspond to the totally black spots on a normal snake. This is true also of the ventral markings. The normally yellow-green ventral surface of the amelanistic specimen is pale yellow. The posterior dorsum of the head is noticeably pink, becoming snow white anteriorly. The jaws and sides of the head are bright yellow and the ventral surface is white with deep pink showing between the scales. The eyes, of course, are pink and the normal black on the tongue is entirely lacking.

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Due to the fact that the specimen lacks only the dark pigments, or melanin, the specific term "amelanistic" seems more suitable in describing the snake than does the general term "albinistic."

A normal snake of the same species and approximately the same age was collected by the writer a few days after the amelanistic specimen was obtained. The normal snake served as a control specimen. Both snakes were kept in a glass case in which was gravel, a few large stones, and some branching twigs, the last two serving, incidentally, to assist in the skin shedding process. The snakes, fed at least once a week, never refused food unless it was of an unnatural type. Both snakes ate equally well in summer and winter, neither having shown any tendency to hibernate as long as kept warm.

The records kept by the writer between September, 1950, and September, 1951, indicate that the amelanistic snake fed on eighty-two occasions: three times—frogs (*Hyla crucifer*); thirteen times \_\_\_\_\_ live guppies; forty-nine times frozen perch (fresh or salt water); and the remaining seventeen times—miscellaneous tropical fish. It is interesting to note that the amelanistic snake readily accepted whole live fish, but frequently refused dead ones. In no instance was packaged fish refused. Although initially live fish were placed in water for the snakes to catch, it proved a better policy to hand-feed, since the normal specimen seemed the better equipped to capture prey. It was not unusual for the amelanistic snake to eat four or five pieces of the packaged fish, the pieces being about **6.0** mm. in diameter and **25.0** mm. long. After an enforced fast, as many as seven pieces were taken. The amelanistic specimen, incidentally, seemed incapable of differentiating between fresh and salt water fish, although the normal snake refused all salt water fish except perch.

A somewhat unrelated yet interesting observation was made in connection with these feeding habits. When pieces of salt water fish were soaked and kneaded in fresh water for several hours, the normal snake accepted them as food. Conversely, if fresh water fish were soaked in the juices of salt water fish, they were refused. This suggests that foods, though possibly recognized through their appearance, are accepted or rejected chiefly by their scent.

The normal snake easily discovered food anywhere within the case. Whether the food was buried in the gravel, placed under water, or hung on a twig, the normal snake took but a short while to locate it. The amelanistic specimen, however, often could not find food six inches from its head and in plain view. Undirected aggressiveness, however, indicated that the snake was not unaware of the presence of food.

Upon occasion, articles dealing with albinism in reptiles and amphibians have mentioned that the lack of melanophores in the eye affects the animal's sight. Whether this condition was operative in the present specimen was not determined. The albino's poor vision, however, became apparent in its

responses to attempts to handle it. Perceiving motion without being able to localize it, the amelanistic snake struck wildly in the general direction of an approaching hand and became tranquil only when motion ceased. The normal snake, on the other hand, like most *radix*, responded with escape-action. Again, the amelanistic and normal specimens differed in their reactions to holding, the former remaining passive, the latter lashing about and emitting musk.

In addition to its abnormal characteristics of scent and vision, the amelanistic specimen displayed definite negativism toward sunlight. Even the comparatively weak rays of the winter sun were vigorously avoided. When necessary, the albinistic snake took refuge in the shadow of a corner support or of a twig, disposing its length to coincide exactly with the shady area. Usually, however, the water dish, stones, or other snakes offered sufficient protection. Since the amelanistic specimen did not seek to avoid electric light, the inference is, of course, that lack of melanophores results in hypersensitivity to certain wave lengths.

When measured just after collection, the amelanistic snake was only 5 mm. shorter than the control specimen, their lengths being 151 mm. and 156 mm., respectively. Within one year the normal one was nearly double its length, while the amelanistic snake was 44 mm. short of doubling its length (the control specimen 308 mm.; the amelanistic specimen 258 mm.). The reason for this discrepancy in rate of growth is unknown and rather paradoxical in view of the fact that the normal snake had a less balanced diet than the albino, that is, no frogs and but few whole fish. It has been suggested that the normal snake may have a more effective digestive tract.

It is interesting to note that the amelanistic specimen never, to the writer's knowledge, employed the defensive action common to this genus. The fact that the amelanistic snake seemed not to manufacture musk, of course suggests that the specimen has either inoperative musk glands or none at all. This fact, together with the other irregularities mentioned in this paper suggest, to this writer at least, that these irregularities are merely symptoms of a more general disturbance. As all areas of the specimen that are mis-functioning (skin, lining of the digestive tract, eyes, olfactory glands, and musk glands) are of epithelial tissue, the natural conclusion is that this tissue has undergone some change, the exact type and extent of which is not known to the writer.

The two snakes dealt with in this paper are now being kept by this writer at the University of Illinois in the hope that they can be raised to maturity. Should the amelanistic snake be successfully reared, experiments in breeding may prove both useful and interesting.

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